Amendments to the Claims

The following listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims

1. (Currently amended) An isolated nucleic acid comprising any one of SEQ ID NOs: 1-4, or a ~~complementary~~ nucleotide sequence complementary along its entire length to any one of SEQ ID Nos: 1-4.

2. (Currently amended) An isolated nucleic acid comprising at least ~~eight~~ 154 consecutive nucleotides of a nucleotide sequence of any one of SEQ ID NOs: 1-4, or a ~~complementary~~ nucleotide sequence complementary along its entire length to any one of SEQ ID Nos: 1-4.

3. (Currently amended) An isolated nucleic acid comprising a nucleic acid sequence that has at least 80% nucleotide identity with a nucleic acid comprising any one of SEQ ID NOs: 1-4, or a ~~complementary~~ nucleotide sequence complementary along its entire length to any one of SEQ ID Nos: 1-4.

4. (Currently amended) The isolated nucleic acid according to claim 3, wherein the ~~nucleic acid comprises an 85%, 90%, 95%, or 98%~~ nucleic acid sequence has at least 85% nucleotide identity with the nucleic acid comprising any one of SEQ ID NOs: 1-4, or a ~~complementary~~ nucleotide sequence complementary along its entire length to any one of SEQ ID Nos: 1-4.

5. (Currently amended) An isolated nucleic acid at least 154 nucleotides in length that hybridizes ~~under high stringency conditions~~ in 5X SSC at 60°C with a nucleic acid comprising any one of SEQ ID NOs: 1-4, or a ~~complementary~~ nucleotide sequence complementary along its entire length to any one of SEQ ID Nos: 1-4.

6. (Currently amended) An isolated nucleic acid comprising a nucleotide sequence as depicted in any one of SEQ ID NOs: 1-4, ~~or of a complementary~~ or a nucleotide sequence complementary along its entire length to any one of SEQ ID Nos: 1-4.

7. (Currently amended) A nucleotide probe or primer specific for the ABCA12 gene, wherein the nucleotide probe or primer comprises ~~at least 15~~ at least 154 consecutive nucleotides of a nucleotide sequence of any one of SEQ ID NOs: 1-4, ~~or of a complementary~~ or a nucleotide sequence complementary along its entire length to any one of SEQ ID Nos: 1-4.

8. (Currently amended) A nucleotide probe or primer specific for the ABCA12 gene, wherein the nucleotide probe or primer comprises a nucleotide sequence of any one of SEQ ID NO: 7-38, or a ~~complementary~~ nucleotide sequence complementary along its entire length to any one of SEQ ID Nos: 1-4.

9. (Original) The nucleotide probe or primer according to any of claim 7 or 8, wherein the nucleotide probe or primer comprises a marker compound.

10. (Withdrawn) A method of amplifying a region of the nucleic acid according to claim 1, wherein the method comprises: a) contacting the nucleic acid with two nucleotide primers, wherein the first nucleotide primer hybridizes at a position 5' of the region of the nucleic acid, and the second nucleotide primer hybridizes at a position 3' of the region of the nucleic acid, in the presence of reagents necessary for an amplification reaction; and b) detecting the amplified nucleic acid region.

11. (Withdrawn) A method of amplifying a region of the nucleic acid according to claim 10, wherein the two nucleotide primers are selected from the group consisting of a) a nucleotide primer comprising at least 15 consecutive nucleotides of a nucleotide sequence of any one of SEQ ID NOs: 1-4, or of a complementary nucleotide sequence, b) a nucleotide primer comprising a nucleotide sequence of any one of SEQ ID 10 NOs: 7-38, or a complementary sequence thereof.

12. (Original) A kit for amplifying the nucleic acid according to claim 1, wherein the kit comprises: a) two nucleotide primers whose hybridization position is located respectively 5' and 3' of the region of the nucleic acid; and optionally, b) reagents necessary for an amplification reaction.

13. (Original) The kit according to claim 12, wherein the two nucleotide primers are selected from the group consisting of a) a nucleotide primer comprising ~~at least 15~~ at

least 154 consecutive nucleotides of a nucleotide sequence of any one of SEQ ID NOs: 1-4, or of a complementary nucleotide sequence, b) a nucleotide primer comprising a nucleotide sequence of any one of SEQ ID NOs: 7-38, or a complementary sequence thereof.

14. (Withdrawn) A method of detecting a nucleic acid according to claim 1, wherein the method comprises: a) contacting the nucleic acid with a nucleotide probe selected from the group consisting of 1) a nucleotide probe comprising at least 15 consecutive nucleotides of a nucleotide sequence of any one of SEQ ID NOs: 1-4, or a complementary nucleotide sequence thereof, 2) a nucleotide probe as in any one of claims 7-9, 3) a nucleotide probe comprising a nucleotide sequence of any one of SEQ ID NOs: 7-38, or a complementary nucleotide sequence thereof, and b) detecting a complex formed between the nucleic acid and the probe.

15. (Withdrawn) The method of detection according to claim 14, wherein the probe is immobilized on a support.

16. (Currently amended) A kit for detecting the nucleic acid according to claim 1, wherein the kit comprises a) a nucleotide probe selected from the group consisting of 1) a nucleotide probe comprising ~~at least 15~~ at least 154 consecutive nucleotides of a nucleotide sequence of any one of SEQ ID NOs: 1-4, or a ~~complementary~~ nucleotide sequence complementary along its entire length to any one of SEQ ID Nos: 1-4, 2) a nucleotide primer as in ~~any one of claim 7 or 9, 3)~~ claim 7, 3) a nucleotide primer as in claim 8; and 4) a nucleotide probe comprising a nucleotide sequence of any one of SEQ ID NOs: 7-38, or a complementary nucleotide sequence thereof, and optionally, b) reagents necessary for a hybridization reaction.

17. (Original) The kit according to claim 16, wherein the probe is immobilized on a support.

18. (Original) A recombinant vector comprising the nucleic acid according claim 1.

19. (Original) The vector according to claim 18, wherein the vector is an adenovirus.

20. (Original) A recombinant host cell comprising the recombinant vector according to claim 19.

21. (Currently amended) [[A]] An isolated recombinant host cell comprising the nucleic acid according claim 1.

22. (Original) An isolated nucleic acid encoding a polypeptide comprising an amino acid sequence of any one of SEQ ID NO: 5 or 6.

23. (Original) A recombinant vector comprising the nucleic acid according to claim 22.

24. (Currently amended) [[A]] An isolated recombinant host cell comprising the nucleic acid according to claim 22.

25. (Currently amended) [[A]] An isolated recombinant host cell comprising the recombinant vector according to claim 23.

26. (Withdrawn) An isolated polypeptide selected from the group consisting of a) a polypeptide comprising an amino acid sequence of any one of SEQ ID NOs: 5 or 6, b) a polypeptide fragment or variant of a polypeptide comprising an amino acid sequence of any one of SEQ ID NOs: 5 or 6, and c) a polypeptide homologous to a polypeptide comprising amino acid sequence of any one of SEQ ID NO: 5 or 6.

27. (Withdrawn) An antibody directed against the isolated polypeptide according to claim 26.

28. (Withdrawn) The antibody according to claim 27, wherein the antibody comprises a detectable compound.

29. (Withdrawn) A method of detecting a polypeptide, wherein the method comprises a) contacting the polypeptide with an antibody according to claim 28; and b) detecting an antigen/antibody complex formed between the polypeptide and the antibody.

30. (Withdrawn) A diagnostic kit for detecting a polypeptide, wherein the kit comprises a) the antibody according to claim 28; and b) a reagent allowing detection of an antigen/antibody complex formed between the polypeptide and the antibody.

31. (Original) A pharmaceutical composition comprising the nucleic acid according to claim 1 and a physiologically compatible excipient.

32. (Original) A pharmaceutical composition comprising the recombinant vector according to claim 23 and a physiologically compatible excipient.

33. (Withdrawn) Use of a recombinant vector according to claim 18 for the manufacture of a medicament for the prevention and/or treatment of a subject affected by a dysfunction in the lipophilic substance transport.

34. (Withdrawn) Use of an isolated ABCA12 polypeptide comprising an amino acid sequence of SEQ ID NO: 5 or 6 for the manufacture of a medicament intended for the prevention and/or treatment of a subject affected by a dysfunction in the lipophilic substance transport or by a pathology located on the chromosome locus 2q34 such as for example the lamellar ichthyosis, the polymorphic congenital cataract, or insulin-dependant diabete mellitus.

35. (Withdrawn) A pharmaceutical composition comprising a polypeptide comprising an amino acid sequence of any one of SEQ ID NOs: 5 or 6, and a physiologically compatible excipient.

36. (Withdrawn) Use of an ABCA12 polypeptide comprising an amino acid sequence of any one of SEQ ID NOs: 5 or 6 for screening an active ingredient for the prevention or treatment of a disease resulting from a dysfunction in the lipophilic substance transport or of a pathology located on the chromosome locus 2q34 such as for example the lamellar ichthyosis, the polymorphic congenital cataract, or insulin-dependant diabete mellitus.

37. (Withdrawn) Use of a recombinant host cell expressing an ABCA12 polypeptide comprising an amino acid sequence of any one of SEQ ID NOs: 5 or 6, for screening

an active ingredient for the prevention or treatment of a disease resulting from a dysfunction in the lipophilic substance transport.

38. (Withdrawn) A method of screening a compound active on the transport of lipid substance, an agonist, or an antagonist of ABCA12 polypeptides, wherein the method comprises a) preparing a membrane vesicle comprising ABCA12 polypeptide having SEQ ID NOs: 4 or 5 and a lipid substrate comprising a detectable marker; b) incubating the vesicle obtained in step a) with an agonist or antagonist candidate compound; c) qualitatively and/or quantitatively measuring a release of the lipid substrate comprising the detectable marker; and d) comparing the release of the lipid substrate measured in step b) with a measurement of a release of a labeled lipid substrate by a membrane vesicle that has not been previously incubated with the agonist or antagonist candidate compound.

39. (Withdrawn) A method of screening an agonist or an antagonist of ABCA12 polypeptides, wherein the method comprises a) incubating a cell that expresses at least a ABCA12 polypeptide having SEQ ID NOs: 4 or 5 with an anion labeled with a detectable marker; b) washing the cell of step a) whereby excess labeled anion that has not penetrated into the cell is removed; c) incubating the cell obtained in step b) with an agonist or antagonist candidate compound for the ABCA12 polypeptide; d) measuring efflux of the labeled anion from the cell; and e) comparing the efflux of the labeled anion determined in step d) with efflux of a labeled anion measured with a cell that has not been previously incubated with the agonist or antagonist candidate compound.

40. (Original) An implant comprising the recombinant host cell according to claim 24.

41. (New) The isolated nucleic acid according to claim 3, wherein the nucleic acid sequence has at least 90% nucleotide identity with the nucleic acid comprising any one of SEQ ID NOs: 1-4, or a nucleotide sequence complementary along its entire length to any one of SEQ ID Nos: 1-4.

42. (New) The isolated nucleic acid according to claim 3, wherein the nucleic acid sequence has at least 95% nucleotide identity with the nucleic acid comprising any

one of SEQ ID NOs: 1-4, or a nucleotide sequence complementary along its entire length to any one of SEQ ID Nos: 1-4.

43. (New) The isolated nucleic acid according to claim 3, wherein the nucleic acid sequence has at least 98% nucleotide identity with the nucleic acid comprising any one of SEQ ID NOs: 1-4, or a nucleotide sequence complementary along its entire length to any one of SEQ ID Nos: 1-4.

44. (New) The isolated nucleic acid according to claim 2, wherein the nucleic acid comprises at least 200 consecutive nucleotides.

45. (New) The isolated nucleic acid according to claim 2, wherein the nucleic acid comprises at least 500 consecutive nucleotides.

46. (New) The isolated nucleic acid according to claim 2, wherein the nucleic acid comprises at least 1,000 consecutive nucleotides.

47. (New) The isolated nucleic acid according to claim 2, wherein the nucleic acid comprises at least 1,500 consecutive nucleotides.

48. (New) The isolated nucleic acid according to claim 5, wherein the nucleic acid comprises at least 200 consecutive nucleotides.

49. (New) The isolated nucleic acid according to claim 5, wherein the nucleic acid comprises at least 500 consecutive nucleotides.

50. (New) The isolated nucleic acid according to claim 5, wherein the nucleic acid comprises at least 1,000 consecutive nucleotides.

51. (New) The isolated nucleic acid according to claim 5, wherein the nucleic acid comprises at least 1,500 consecutive nucleotides.

52. (New) The isolated nucleic acid according to claim 7, wherein the nucleic acid comprises at least 200 consecutive nucleotides.

53. (New) The isolated nucleic acid according to claim 7, wherein the nucleic acid comprises at least 500 consecutive nucleotides.

54. (New) The isolated nucleic acid according to claim 7, wherein the nucleic acid comprises at least 1,000 consecutive nucleotides.

55. (New) The isolated nucleic acid according to claim 7, wherein the nucleic acid comprises at least 1,500 consecutive nucleotides.

56. (New) The isolated nucleic acid according to claim 13, wherein the nucleic acid comprises at least 200 consecutive nucleotides.

57. (New) The isolated nucleic acid according to claim 13, wherein the nucleic acid comprises at least 500 consecutive nucleotides.

58. (New) The isolated nucleic acid according to claim 13, wherein the nucleic acid comprises at least 1,000 consecutive nucleotides.

59. (New) The isolated nucleic acid according to claim 13, wherein the nucleic acid comprises at least 1,500 consecutive nucleotides.

60. (New) The isolated nucleic acid according to claim 16, wherein the nucleic acid comprises at least 200 consecutive nucleotides.

61. (New) The isolated nucleic acid according to claim 16, wherein the nucleic acid comprises at least 500 consecutive nucleotides.

62. (New) The isolated nucleic acid according to claim 16, wherein the nucleic acid comprises at least 1,000 consecutive nucleotides.

63. (New) The isolated nucleic acid according to claim 16, wherein the nucleic acid comprises at least 1,500 consecutive nucleotides.